

LIST OF THE CLAIMS

1. (Previously Presented) A system for power management of a rack of computers, the system comprising:
server side infrastructure (SSI) circuitry at each computer in the rack, the SSI circuitry including local monitoring circuitry coupled to a central processing unit (CPU) of the computer; and
a centralized power management module (CPMM) with an out-of-band (OOB) management link to the SSI circuitry at each computer in the rack,
wherein the CPMM is configured to monitor power being consumed by the CPUs by sending a polling message to the SSI circuitry at each computer in the rack,
wherein the local monitoring circuitry within the SSI circuitry at each computer in the rack is configured to monitor power consumption and temperature at the CPU and to respond to the polling message from the CPMM by transmitting a power consumption value and a temperature consumption value to the CPMM, and
wherein the CPMM is further configured to apply a set of rules to the power consumption and temperature values from the local monitoring circuitry to determine when and at which computers to enable and disable a CPU power throttling mode and when at which CPUs to apply thermoelectric cooling.
2. (Currently Amended) The system of claim 1, wherein the rack of computers comprises servers mounted in the rack.
3. (Previously Presented) The system of claim 1, wherein the rack of computers comprise a plurality of blade servers in a blade chassis.
4. (Canceled)
5. (Original) The system of claim 1, further comprising:

a console coupled to the CPMM for user interaction.

6. (Original) The system of claim 5, wherein the console comprises a console connected locally to the CPMM.

7. (Original) The system of claim 5, wherein the console comprises a remote console coupled via a network to the CPMM.

8. (Original) The system of claim 5, wherein the system is configured to enable a user to setup the aforementioned rules by way of the console.

9. (Original) The system of claim 5, wherein the system is configured to enable a user to view power consumption data by way of the console.

10. (Previously Presented) The system of claim 1, further comprising:
additional CPMMs with management links to SSI circuitry at additional racks of computers; and
a power management system coupled to the plurality of CPMMs.

11. (Original) The system of claim 10, wherein the power management system is configured to enable a user to view power consumption data and to customize the sets of rules applied by the CPMMs.

12. (Previously presented) A server-side apparatus for a rack-mounted computer, the apparatus comprising:
local monitoring circuitry coupled to a central processing unit (CPU) of the computer and coupled to a centralized power management system which is configured to manage power and temperature for a rack of computers,
wherein the local circuitry is configured to monitor power consumption and temperature at the CPU, transmit power consumption and temperature data to the centralized power management system, receive out-of-band polling messages from the

centralized power management system, respond to the polling messages by transmitting a power consumption value and a temperature value to the centralized power management system, and send commands to enable and disable a power throttling mode and to apply thermoelectric cooling at the CPU.

13. (Original) The apparatus of claim 12, further comprising:
a power measurement link between the local monitoring circuitry and the CPU for monitoring power consumption at the CPU.
14. (Original) The apparatus of claim 13, further comprising:
an interrupt line between the local monitoring circuitry and the CPU for transmitting interrupt messages that enable and disable the power throttling mode at the CPU.
15. (Original) The apparatus of claim 13, further comprising:
a special register writable by the local monitoring circuitry and readable by the CPU to enable and disable the power throttling mode at the CPU.
16. (Previously Presented) A central power management apparatus for a rack of computers, the apparatus comprising:
a management module coupled via an out-of-band link to local monitoring circuitry at each computer in the link,
wherein the management module is configured to transmit polling messages to the local monitoring circuitry, receive temperature values from the local monitoring circuitry in response to the polling messages, determine at which computers to enable and disable a CPU power throttling mode and at which computers to apply thermoelectric cooling, and transmit messages to said determined computers to enable and disable the CPU power throttling mode and messages to said computers to apply the thermoelectric cooling.

17. (Previously Presented) A method for efficient temperature management of a rack of computers, the method comprising:
monitoring temperature at each computer in the rack;
receiving polling messages at each computer in the rack;
responding to the polling messages by transmitting a temperature value from each computer to the rack to a single centralized power manager; and
receiving messages from the single centralized power manager which instruct each computer when thermoelectronic cooling is to be applied;
18. (Canceled)
19. (Previously Presented) The method of claim 17, wherein the rack of computers comprises a rack of servers.
20. (Previously Presented) A centralized method of efficient temperature management for a rack of computers, the method comprising:
transmitting polling messages to local monitoring circuitry at each of the computers in the rack;
receiving responses to the polling messages from the local monitoring circuitry at each of the computers in the rack, wherein the responses include temperature values;
determining at which computers to apply thermoelectric cooling; and
transmitting messages to said determined computers to apply said thermoelectric cooling.
21. (Previously Presented) The method of claim 20, wherein the rack of computers comprises a rack of servers.
22. (Previously Presented) A power management apparatus for managing power usage of a rack of computers, the apparatus comprising:
means for transmitting polling messages to local monitoring circuitry;

means for receiving responses to the polling messages from the local monitoring circuitry at each of the computers in the rack, wherein the responses include root mean squared power consumption values and temperature values;
means for determining at which computers to enable and disable a CPU power throttling mode and for determining at which computers to apply thermoelectric cooling;
and
means for transmitting messages to said determined computers to enable and disable the CPU power throttling mode and to apply said thermoelectric cooling.

23. (Previously Presented) The apparatus of claim 22, wherein the means for transmitting messages comprise out-of-band links to the local monitoring circuitry.